Treatment

Outpatient Triage

- Home treatment:
  - No hemorrhagic manifestations and patient is well-hydrated
- Outpatient observation center or hospitalization:
  - Hemorrhagic manifestations or hydration borderline
- Hospitalize:
  - Warning signs (even without profound shock) or DSS

Patient Follow-Up

- Patients treated at home
  - Instruction regarding danger signs
  - Consider repeat clinical evaluation
- Patients with bleeding manifestations
  - Serial hematocrits and platelets at least daily until temperature normal for 1 to 2 days
- All patients
  - If blood sample taken in first 5 days after onset, need convalescent sample between days 6 - 30
  - All hospitalized patients need samples on admission and at discharge or death

Treatment of Dengue Fever (Part 1)

- Fluids
- Rest
- Antipyretics (avoid aspirin and non-steroidal anti-inflammatory drugs)
- Monitor blood pressure, hematocrit, platelet count, level of consciousness

Mosquito Barriers

- Only needed until fever subsides, to prevent *Aedes* mosquitoes from biting patients and acquiring virus
- Keep patient in screened sickroom or other mosquito-proof environment

Treatment of Dengue Fever (Part 2)

- Continue monitoring after defervescence
- If any doubt, provide intravenous fluids, guided by serial hematocrits, blood pressure, and urine output
- The volume of fluid needed is similar to the treatment of diarrhea with mild to moderate isotonic dehydration (5%-8% deficit)

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Fluid for Moderate Dehydration (Intravenous)

weight in lbs	ml/lb/day	weight in kgs	ml/kg/day
< 15	100	< 7	220
16 - 25	75	7 - 11	165
26 - 40	60	12 - 18	132
41 - 88	40	19 - 40	88

Adapted from Guidelines for Treatment of Dengue Fever/ Dengue Haemorrhagic Fever in Small Hospitals, WHO, 1999.

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Rehydrating Patients Over 40 kg

- Volume required for rehydration is twice the recommended maintenance requirement
- Formula for calculating maintenance volume: 1500 + 20 x (weight in kg - 20)
- For example, maintenance volume for 55 kg patient is: 1500 + 20 x (55-20) = 2200 ml
- For this patient, the rehydration volume would be 2 x 2200, or 4400 ml

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Treatment of Dengue Fever (Part 3)

- Avoid invasive procedures when possible
- Unknown if the use of steroids, intravenous immune globulin, or platelet transfusions to shorten the duration or decrease the severity of thrombocytopenia is effective
- Patients in shock need treatment in an intensive care unit

Indications for Hospital Discharge

- Absence of fever for 24 hours (without anti-fever therapy) and return of appetite
- Visible improvement in clinical picture
- Stable hematocrit
- 3 days after recovery from shock
- Platelets $\geq 50{,}000/mm^3$
- No respiratory distress from pleural effusions/ ascites

Common Misconceptions about Dengue Hemorrhagic Fever

- ✘ **Dengue + bleeding = DHF**
  - ✔ Need 4 WHO criteria, capillary permeability
- ✘ **DHF kills only by hemorrhage**
  - ✔ Patient dies as a result of shock
- ✘ **Poor management turns dengue into DHF**
  - ✔ Poorly managed dengue can be more severe, but DHF is a distinct condition, which even well-treated patients may develop
- ✘ **Positive tourniquet test = DHF**
  - ✔ Tourniquet test is a nonspecific indicator of capillary fragility

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More Common Misconceptions about Dengue Hemorrhagic Fever

- ✘ DHF is a pediatric disease
  - ✔ All age groups are involved in the Americas
- ✘ DHF is a problem of low income families
  - ✔ All socioeconomic groups are affected
- ✘ Tourists will certainly get DHF with a second infection
  - ✔ Tourists are at low risk to acquire DHF

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Dengue Vaccine?

- No licensed vaccine at present
- Effective vaccine must be tetravalent
- Field testing of an attenuated tetravalent vaccine currently underway
- Effective, safe and affordable vaccine will not be available in the immediate future